# Source Water Assessment Program (SWAP) Report
# For
# Shaw's Plaza

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
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**Table 1: Public Water System (PWS) Information**

| | |
|---|---|
| ***PWS NAME*** | Shaw's Plaza |
| ***PWS Address*** | 160 North Main Street |
| ***City/Town*** | Carver, Massachusetts |
| ***PWS ID Number*** | 4052051 |
| ***Local Contact*** | Tim O'Loughlin |

| ***Well Name*** | ***Source ID#*** | ***Zone I (in feet)*** | ***IWPA (in feet)*** | ***Source Susceptibility*** |
|---|---|---|---|---|
| Well #1 | 4052051-01G | 180 | 560 | High |
| Well #2 | 4052051-02G | 180 | 560 | High |

### What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? inventory land uses within the recharge areas of all public water supply sources;
? assess the susceptibility of drinking water sources to contamination from these land uses; and
? publicize the results to provide support for improved protection.

### SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

## INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

**Purpose of this report:**
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

**This report includes:**
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

## 1. DESCRIPTION OF THE WATER SYSTEM

**The Well**
Shaw's Plaza is a public water system with two (2) water supply wells currently serving a supermarket and retail space. The wells for Shaw's Plaza are located in an undeveloped meadow on the northern portion of the property. Records indicate the previous land uses of the property consisted of gravel mining and pasture. Well #1 and Well #2 have a Zone I of 180 feet and an Interim Wellhead Protection Area (IWPA) of 560 feet. Please refer to the attached map of the Zone I and IWPA.

**What is a Protection Area?**

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

The Zone I is owned and controlled by the public water system and meets DEP's restrictions which only allow water supply related activities in the Zone I. The public water system consists of two (2) six inch bedrock wells completed to depths of 740 feet and 670 feet, respectively. The wells are located in a bedrock aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. There is no emergency backup power to the well pumps. The irrigation and the fire sprinkler system have backflow prevention devices.

**The Water Quality**
The wells serving the facility have an iron removal treatment system in the form of an U.S. filter unit. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

## 2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

**Key issues include:**

1. **Photo Processor and Small Quantity Generator of Hazardous Waste (SQG)**
2. **Industrial Wastewater Holding Tank**
3. **Storm water**

The overall ranking of susceptibility to contamination for both wells is **High**, based on the presence of at least one **High** threat land use or activity in the IWPA, as seen in Table 2. Implementing the following recommendations will reduce the system's susceptibility to contamination.

**Table 2: Table of Activities within the Water Supply Protection Areas**

| Facility Type | Potential Contaminant Sources | Zone I | IWPA | Threat | Comments |
|---|---|---|---|---|---|
| Photo processor | silver-bearing waste | No | Yes | High | registered with Environmental Results Program at DEP |
| | Small quantity generator of hazardous waste - SQG | No | Yes | Moderate | photo processor waste - SQG Permit |
| Pasture | Horse grazing field | No | Yes | Moderate | potential source of microbial contamination |
| Plaza | Septic System | No | Yes | Moderate | refer to septic systems brochure attached |
| Hair Salon | Aboveground Storage Tank | No | Yes | Moderate | industrial wastewater holding tank |
| Residence | Fuel Storage Above Ground | No | Yes | Moderate | heating fuel |
| Very small quantity generator of waste oil | waste oil | No | Yes | Low | < 27 gallons per month |
| Plaza | storm water drains/retention basins | No | Yes | Low | subsurface drainage system |

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

## Glossary

**Zone I:** The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

**IWPA:** A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

**Zone II:** The primary recharge area defined by a hydrogeologic study.

**Aquifer:** An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

**Hydrogeologic Barrier:** An underground layer of impermeable material that resists penetration by water.

**Recharge Area:** The surface area that contributes water to a well.

1. **Photo processor and SQG-**The photo processor at this location is registered through the Environmental Results Program as a photo processor and additionally as a small quantity generator of hazardous waste. The Environmental Results Program streamlines existing pollution control requirements for photo processing facilities by replacing individual water pollution control and hazardous waste recycling permits with a minimum statewide silver discharge limit; monitoring; and simplified operating and maintenance rules. Most automated photo processing equipment produces silver-bearing waste.

   **Recommendations:**

   ✓ The photo processor should review its Environmental Results Program certification and the *Photo Processor Environmental Certification Workbook* for photo processor which covers DEP's industrial wastewater management, and hazardous waste management requirements for photo processing operations. The workbook explains the standards, and provides tips on how to comply. Some facilities may be subject to additional state, federal or local environmental standards that are not covered by the ERP compliance certification. The photo processor must still comply with these requirements, even though they are not included as part of the ERP certification.

2. **Industrial Wastewater Holding Tank**-Industrial Wastewater Holding Tank associated with the disposal of salon waste is located within the IWPA. Non sanitary and process flows from hair salons are classified as industrial wastewater and cannot be discharged to the dry wells, storm drain or septic system. If this wastewater was disposed to the ground or to storm drains this might endanger drinking water or surface waters such as lakes, streams and estuaries. In a September 3, 1997 letter, the Department approved plans for the installation of industrial wastewater holding Tank. On August 7, 1997 the Town of Carver certified the system was installed in accordance with provisions of Title 5.

   **Recommendations:**

   ✓ Keep a monitoring log detailing inspections, maintenance and pump outs from the holding Tank on the premises. Monitor and maintain the holding tank in accordance with Department approval letter and Board of Health requirements.

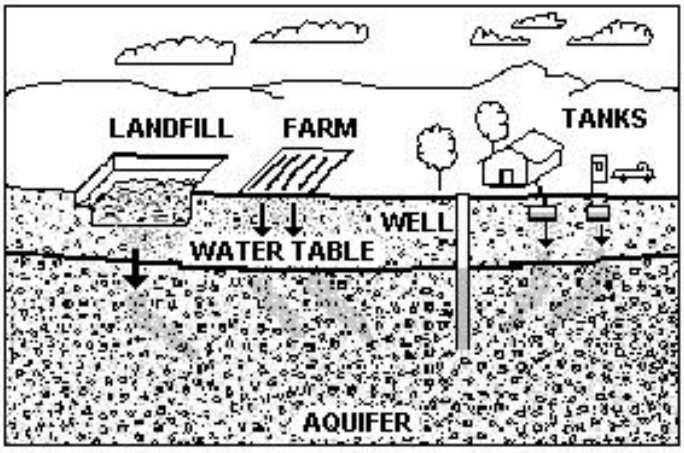


Figure 1: Example of how a well could become contaminated by different land uses and activities.

3. **Storm Water-**Storm water from the parking lot is routed to a storm water treatment system consisting of catch basins, oil/water separators, and subsurface detention area prior to discharge to wetlands. There are nine (9) catch basins in the IWPA. Seven (7) catch basins associated with the facilities parking lot and two (2) catch basins are located along route 58.

   As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

   Pollutants are actually not removed from most catch basins until they are cleaned out. Regular maintenance is required to reduce the risk of resuspension of sediments during large storm events. Maintenance is essential for the proper operation of catch basins, oil/water separators and the subsurface detention area.

**Recommendations:**

- ✓ If you do not have a storm water maintenance plan developed, develop one. Maintenance plans should identify owners, parties responsible for maintenance and inspection and maintenance schedule. Inlets should be cleaned out a minimum of four times per year and inspected monthly. The outfall should be inspected annually. Examination of the outfall discharge for color, turbidity, odor, oil sheen etc. should be recorded.
- ✓ Additionally, street and parking lot sweeping reduces the amount of potential contaminants in stormwater runoff.
- ✓ All sediments and hydrocarbons should be properly handled and disposed in accordance with local, state and federal guidelines and regulations. Catchbasin cleanings are classified as a solid waste and must be handled and disposed of in accordance with all DEP regulations, policies and guidance.

## 3. PROTECTION RECOMMENDATIONS

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Shaw's Plaza is commended for current protection measures. Shaw's Plaza should continue to implement the following Zone I protection measures:

- ✓ Continue to keep non-water supply activities out of the Zone I.
- ✓ Continue to prohibit public access to the well and pumphouse by locking facilities, gating roads, and posting signs.
- ✓ Continue to conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.
- ✓ Continue not to use or store pesticides, fertilizers or road salt within the Zone I.
- ✓

Shaw's Plaza should review and adopt the key recommendations above and the following recommendations:

**IWPA:**

- ✓ **Very Small Quantity Generator (VSQG) of Waste Oil:** The supermarket at this facility is registered as a VSQG. Refer to the attachment *A Summary of Requirements for Small Quantity Generators of Hazardous Waste* for additional information regarding requirements for VSQG.
- ✓ Consider propane or natural gas for back-up power sources for the well pumps in the future
- ✓ **Above Ground Storage Tanks -**Based upon plans in the Department files, there are at least two (2) AST associated with residences in IWPA. All tanks in close proximity to water supply wells should be upgraded to meet current construction standards. Contact your local fire department for further assistance.

### Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, food preparation staff and any other who handle this material.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.
- ✓

### Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.htm.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property (refer to attachment "Protecting Water Sources from Fertilizer").
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

**For More Information:**

Contact Mark Dakers in DEP's Lakeville Office at (508) 946-2847 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at: www.state.ma.us/dep/brp/dws.

**Additional Documents:**

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the Public Water Supplier, town boards, the town library and the local media.

**Planning:**

- ✓ Work with local officials in Plympton and Carver to include Shaw's Plaza IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

**Agricultural**

- ✓ Encourage farmers in the IWPA to seek assistance from the Natural Resource Conservation Service (NRCS) in addressing manure management (refer to attachment "Mud and Pasture Management").

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

# ATTACHMENTS

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Fertilizer Use Fact Sheet
- Industrial Floor Drains Brochure
- Mud and Pasture Management
- A Summary of Requirements for Small Quantity Generators of Hazardous Waste
- ERP Fact Sheet